

Scape the Hood : A design case study of a location based digital story mediascape

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ABSTRACT

This paper describes the design process and evaluation of a located mediascape called “Scape the Hood”. It is written as a design case study and describes in detail the process by which artists gathered content, created regions and rapidly iterated through several designs using a location based software platform. The paper highlights the nuances of designing for GPS and the lessons learned. It includes an evaluation of the experience with feedback gathered from questionnaire and interviews.

Categories and Subject Descriptors

H.5.2 User Interfaces

General Terms

Design, Human Factors.

Keywords

Mediascape, mobile, locative media, situated media, experience design.

1. INTRODUCTION.

“Scape the Hood” was an experiment to investigate the potential for combining storytelling with location aware mobile technologies. Using GPS-enabled HP iPAQ Pocket PCs and a location-based software platform, participants were able to walk around a San Francisco neighborhood and learn about its history and culture and about impending changes to its character. The located stories created a particular kind of mediascape.

The term mediascape is used to describe the user experience of walking through the physical world and triggering digital media which has been situated in that place for a particular reason by the mediascape designer. These mediascapes form a digital landscape in which digital content and applications overlay the physical landscape of our environment. This digital media is accessed when the user walks through the physical world carrying a mobile client device such as a 3G phone or handheld computer. To associate digital media with physical space and specify the

interaction design the Mobile Bristol Authoring framework (MBAF) has been developed as a software platform for creating mediascapes. The MBAF was used to create “Scape the Hood”.

Whilst audio stories and walks have been produced ever since portable mobile players became widely available, hitherto they have mainly been associated with museum tours or heritage and specialist sites. As new forms of digital technology become available the creation and deployment of mobile media based experiences becomes viable for many more people. For example podcasts are growing in popularity through the increase in use of portable MP3 players and the wide availability of computer based tools for recording and publishing audio. Mediascapes can be thought of as the next form of mobile media and the goal of the MBAF is to make them as easy to create as web pages are today [7, 10].

This paper describes the design process used for creating an audio mediascape. It highlights the particular nuances of designing sounds for the environment and coping with the indeterminate nature of GPS.

1.1 Related work

Locating and listening to stories “in place” has a long established tradition. In the past oral story tellers have often used the story telling context to help create a receptive atmosphere for the listener and to use features of the environment as an integral part of the story. Adopting and appropriating technologies so that they can be used to tell stories is a natural evolutionary process. In 1991 the artist Janet Cardiff used simple portable tape recorders to create atmospheric audio walks of stories with ambient sounds. On the commercial side Antenna Audio [2] established a business to create audio experiences such as the Alcatraz tour for museums, historic sites, and visitor attractions which is now long established and evolving to embrace some of the newer mobile technologies and devices.

The archival audio project [murmur] [9] collects and curates stories set in specific Toronto locations, told by Torontonians themselves. A [murmur] sign with a telephone number on is placed at each of the story locations to visually indicate the presence of a story. Users are able to listen to the story by using a mobile phone to dial the number on the sign. Some stories suggest that the listener walk around, following a certain path through a place, while others allow a person to wander with both their feet and their gaze.

Spatial narrative design has also been explored in the context of cemeteries [5]. These early forms of technology mediated located

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stories share the same form of interaction style, the user initiates a request for a piece of content, usually by entering a number or pressing a button and then the story is played on the mobile device.

Location and sensing technologies such as GPS or RFID make it possible to automatically detect presence or location and thus make the delivery of content automatic. It adds a powerful dimension to the act of finding and locating stories [8]. This choice of interaction style for triggering content is however a challenging design choice because GPS suffers from many well known problems [3,6] that make it unsuitable for fine grain sensing and erratic in its behaviour. Despite these problems researchers have created several successful GPS based experiences [3,4,6].

2. RATIONALE

The project was a research collaboration between HP Laboratories and KQED who shared a common interest in digital story telling and the use of mobile technologies. As KQED were hosting the eighth Digital Story telling festival the event acted as a catalyst for the project and provided the opportunity to showcase a story based mediascape using technologies from HP and creative direction from KQED.

The design goal for the mediascape was to transform a few seemingly drab city blocks into a landscape rich with sound, sights and stories. To expose the hidden stories of the people who frequent that neighbourhood in a form that the designers called 'narrative archeology,' because it is peeling back the layers of the neighborhood.

Two key premises for the project were around the form of content base and the interaction style. As the project would be part of the Digital Story telling festival the content would be story based and adhere to the principals intrinsic to the digital story telling community which are “an emphasis on personal voice and facilitative teaching methods” [15].

A key assumption in the choice of interaction style was that walking to automatically trigger sounds in the environment was part of the “magic” [14]. This was based on experiencing other location triggered mediascapes and experimenting with the MBAF. It was one of the key differentiators for exciting potential artists to work on content for the project and putting stories in the outside environment.

The project was jointly managed by HP and KQED who agreed to solicit local artists and other interested parties to work on the project with the goal of producing a demonstration mediascape in time for the launch of the festival.

3. PROCESS

In this section we describe the overall process for creating what was subsequently called “Scape the Hood”. The complete experience was broken up into four sub-projects :

1. **Mediascape Intro / Outro**, produced by Sean Horton of Antenna Theater, was designed to make the overall experience flow be entertaining and smooth. For example we know that when leaving an indoor space it can take several seconds or even minutes for a GPS unit to get a good “fix” and report location reliably. This piece was designed to entertain the listener whilst the

fix was being obtained and reassure the participant when the fix was ready.

2. **Project Artaud**, produced by Abbe Don and David Lawrence, was based around the stories of the artists who live and work in Project Artaud, a non-profit, member-run organization. The design process that was used to create this piece will be the main case study described later in this paper.
3. **Land and History**, produced by Paula Levine, Carolina Lucero Funes and Romero Alves, was designed to expose the area’s environmental and historical past when it was once Ohlone land.
4. **Mission Village Market**, produced by Leslie Rule, Stan Heller and Thom Mallon, captures the stories and sounds of the vibrant Saturday community flea market.

Part of the design process was to decide on the physical location for the mediascape. The experience would start at the KQED offices and so the surrounding neighbourhood was explored to decide which area the mediascape would cover, what the boundaries would be and thus what kind of content should be overlaid.

The final area chosen was three city blocks. This area was chosen because

- It was not too far for people to walk around if they only had half an hour in between other conference activities
- There were plenty of rich visual assets such as wall murals and pavement art in the area
- The artists who were chosen to work on the mediascape had some affinity with some aspect of the physical space
- Three distinct groups of artists formed and the three blocks made natural divisions of the physical space.

The three distinct areas are shown in Figure 1 which shows the map that was produced as a handout to participants. The base of the red arrow shows the exit from the KQED building and thus the start point of the mediascape. The Mediascape Intro plays along the first street until the intersection where the user has the choice to turn left, right or straight on.



Figure 1. Mediascape map of the area handout

The three artist groups followed a similar development process to create their sections of the mediascape. We will describe in detail the process used on the Project Artaud section as an example of the general process.

3.1 Design of the Project Artaud mediascape

The description of the design process is based on an interview with Abbe Don of HP Laboratories and David Lawrence of Project Artaud who were the designers and producers of the Project Artaud mediascape. Don has pursued a dual career as a user experience designer in the software industry and as an interactive media artist in the arts community. Lawrence is a media artist, designer, producer, and researcher who is a resident of Project Artaud.

3.1.1 Write a short creative brief for the project

The designers had a clear idea of the kind of mediascape that they wanted to create. Based around Project Artaud they wanted to “bring the stories of the building out onto the street”. They chose to use sound only media so that they could “create an aural landscape, creating a space in your head”. Having worked with radio sound designers they wanted to recreate the qualities of a National Public radio aesthetic to “give a rich feeling of you really being there ... a combination of ambience and layering and voices and allowing stories to feel like they are unfolding before you”.

They were already very familiar with the physical environment and so they did not need to conduct observational studies. They began by identifying the people that they wanted to interview.

3.1.2 Identify interviewees

Whilst this was the designers first experience of creating a situated mediascape they were both familiar with previous projects [4,13] and had read the Experience Design Guidelines [12]. They chose artists to interview who were involved in public spaces or who had “street presence” with their artwork. For example there is an awning on the street for the Traveling Jewish Theatre and there are murals along many of the walls and so artists who were associated with these projects were identified. The designers knew that the visual connection between what you could hear and what you could see is a strong positive experience in mediascapes.

3.1.3 Conduct interviews

In the first few interviews the tension between the nature of the medium and the nature of story telling was highlighted. Whilst the designers knew from their experience in web based new media that the content needed to be “short and chunky” they also felt that “the people they interviewed were incredibly good story tellers with really rich stories who love to talk”. The interviews were several hours in length which they knew would be far too long but their approach was to “let the camera roll and the stuff will appear”.

In addition to the planned studio based interviews the designers recorded spontaneous conversations with people that they met around the building. They also went for a walk around the block with several of the artists. The designers reflected that the majority of the content that was used in the final piece came from the conversations around the streets.

For example one of the most popular stories reported by subsequent participants was about the bricks in the side walk that were taken from a demolished furnace. The story works well because it has a strong link to physical things that you can see in the environment but it is unlikely to have been told if the act of seeing the bricks had not acted as a reminder. If interviews are conducted away from the actual environment then the stories will be more abstract, the environment itself is a strong trigger for remembering stories about a place.

One danger of interviewing people “in situ” is that they feel compelled to simply describe what you can see anyway. Don reflects on an interview with one of the mural artists that it was only when he was asked about the dedication on the picture did a “beautiful story about his mother” get told, up until then the artist was simply describing what was in each of the pictures.

3.1.4 Gather ambient sounds.

In addition to the interviews the designers actively recorded ambient sounds from the streets. The sounds that they gathered were a mixture of planned and spontaneous events that they thought might work well in the mediascape. For example the sounds of skateboarders on a ramp and the sound of the hand bell rung by an ice cream seller. They were aware of the concept of “magic moments” when a real event spontaneously occurs at the same time you are listening to some related audio. They knew that if they included events that were likely to be seen or heard whilst experiencing the mediascape then it would create a “magic moment” for the participant. They also knew that this could not be guaranteed so some people would get them and others would not.

3.1.5 Select stories

The designers then went through all of the media gathered to create a collection of stories and a collection of snippets. Snippets were little catch phrases that could be taken out of their wider spoken context and still be meaningful. The designers felt they might be useful but did not know exactly in what way or what for. Subsequently the designers used the snippets in printed quotes that were hung up at the festival and also in a few of their “stingers” which are described later.

The material for the stories was cut down from around two and a half hours to about forty minutes of media and 25 to 30 stories identified. These were edited into “rough cuts” of distinct separate story files with any redundancy or non-story related content cut out. Each story was also given a title.

3.1.6 Region design and experimentation.

The Mobile Bristol Authoring Framework (MBAF) provides a graphical interface for drawing regions on a scaled image of the area. The interface for the tool is shown in Figure 3, which shows the complete Scape the Hood mediascape with all four sub projects. A more detailed image of The Project Artaud section is shown in Figure 4.

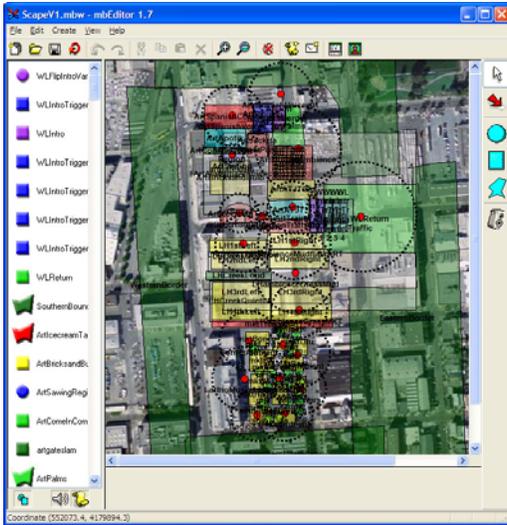


Figure 2. Screen shot of the Mobile Bristol Authoring tool

The designers experimented with different region layouts, different kinds of fade, logic for when media was played and different kinds of content which we now briefly describe. *“It took a bit of walking in the environment to understand what was actually happening as opposed to what our cognitive model was”.*

Region layout : One of the problems that the designers had was the inadvertent triggering of content that you could not see yet. For example there is a palm garden on the corner of Florida Street and around the corner on 17th Street there are extensive wall murals. The regions needed to be carefully placed so that the user did not trigger the story for the murals before they have turned the corner and can see them. Several iterations and testing was required at different times of the day to get the optimum region placement so that interference from the surrounding buildings was minimized.

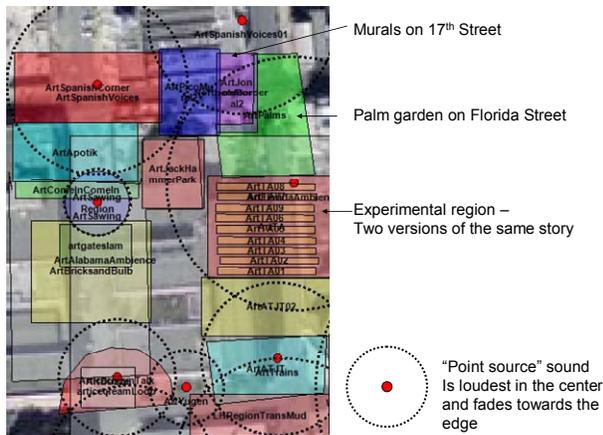


Figure 3. Zoomed in Project Artaud section of the mediascape

Use of fade : In version 1.7 of the MBAF there is a “Point Source” object which behaves as if you had placed a physical loud speaker in the environment; the sound becomes louder the nearer you are to the speaker. The designers thought that this would work well for stories to create a sense that the artist was

right there on the street and as you got nearer to them they got louder and faded as you moved away. After experimentation they decided that this behaviour did not work at all well for narrative pieces because the fading was too acute and did not match the natural story arc of a narrative. They found that the point source was ideal for ambient sounds and really localized sounds, like the sounds of skateboarders where there was a visible ramp that it made sense for the sound to emanate from.

For narrative pieces they chose to use regions with soft temporal fades near the edges so that there were not too many abrupt transitions between regions and the sound would remain strong within most of the region to take you through the whole story arc. They also chose to make all of the narrative based regions have “pause and resume” behaviour so that if the user leaves a region the story would pause. If they re-entered the region and had only heard a fraction of the story then it would continue. If they had already reached the narrative peak of the story, roughly 80% of the content, then next time they re-entered the region it would skip to the next story. There were up to two or three stories associated with each region so that it was possible to walk a couple of times around the block and hear different stories.

3.1.7 Create fine cut audio pieces.

Once the designers were happy with their selection of stories and where they would be placed in the physical space the audio was edited to produce “fine cuts”. These are high quality sound files with any noise and redundancy cut out. Lawrence describes the process by which he takes a story that could take 5 minutes to unfold in the interview to get to its one minute essence *“Its listening to the narrative arc and trying to create a flow that doesn't change the speakers meaning but gets to the point as efficiently as possible and directing the listener through whatever they are trying to say”* There is also technical editing to remove long pauses and things that would be distracting irritants to the listener. *“Its different when you listen from say watching a video or look at somebody. You are focusing just on their speech and it jumps out on you - every tick, every idiosyncrasy, every cough, every licking of their lips is really heightened when you have just audio”.*

3.1.8 Refine design and interaction.

Once the overall structure, ideas and “fine cuts” for the piece had been created then the designers went through intense iteration and refinement sessions. The designers chose to work in big eight hour chunks with one of them doing audio editing and one doing authoring. They sat with their laptops either side of a table facing each other

“we began to do what would be in film terms known as sweetening the audio - adding ambient sounds, musical beds under the voices, and doing more of our layering, and we worked in different ways... I was editing and creating audio then pass them to Abbe on like a thumb drive, she puts them in the editor and then we go outside and try it and we come back and do it again. We would test it in emulation mode but it is always different when you actually go out and hear it in the site. That was an important iterative process for us.”

The designers found that there was a huge difference between trying the piece in emulation mode on the PC to actually hearing it in situ. On the emulator it is possible to move in ways that you cannot in the physical space and so it does not give you an

accurate picture of what it is like as an experience. The designers also found it hard to emulate walking speed using the mouse. The variability of GPS, which can change at different times depending on the number of satellites overhead and whether they are being obscured, dramatically affects the experience and this is not reflected in the emulation.

The designers found that the sounds seemed richer when played through headphones indoors and that the ambiance of the real neighbourhood would change the experience spatially and cognitively. *“In the studio on head phones a story might seem fine but out in the neighbourhood it might just seem flat”*. Reflecting on why this was so the designers felt it was a combination of the visual cues that were dominant in the environment which meant that the story was not the only stimulus for your attention and the ambient audio which could be very powerful. They felt that there may be an adjacency effect, similar to that of colour theory [1] whereby sounds could become brighter or duller depending on what they were adjacent to.

To liven up the mediascape the designers came up with an exciting concept that they called **“stingers”** explained in the following account *“We originally had a pretty good notion of an ambient layer and a voice layer and as we walked around it just seemed that it was missing something – it was boring – well I wouldn’t say it was boring it was just flat – middle of the road – kind of huh whatever. So we still had in our collection of ambient audio other kinds of ambience and I think David really had the idea of having them as very small regions, very short kind of in between sound volume that would play between the ambience and the stories. And those were in some part the most fun part of creating this. As it really added – it’s like adding highlights to a painting or visual.”*

In participant interviews and comments several of the stingers, especially the invitation to come in through the metal gate, were mentioned as being great fun and really working well.

3.1.9 Release to the group.

Project Artaud was one section of a wider mediascape. A project co-ordinator was responsible for stitching together the individual sections which meant that there were planned project release times in the overall project plan. After integration all of the groups walked around the whole mediascape so that they could evaluate the overall piece and the flows between the sections. The groups also agreed on the idea of a boundary region that warned participants when they got to the edge of the designed mediascape boundary to turn back.

3.2 Wider experience design

3.2.1 Equipment sash

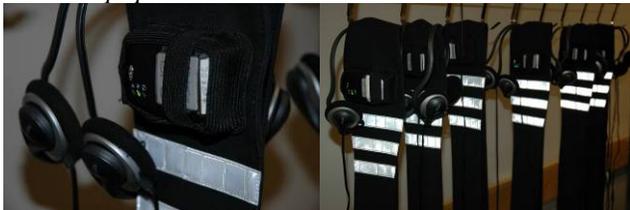


Figure 4. Sashes

The equipment that was used comprised of an iPAQ 3715 handheld computer, a Globalsat BT 338 GPS unit and headphones. To provide an enjoyable hands free walking

experience a sash was designed that could hold all of the equipment. Elements of the sash design included a GPS holder that would be positioned on the shoulder so that the GPS unit would be visible to the sky. There was also an iPAQ compartment, positioned on the front so that it was easy for assistants to get them in and out for set up and debugging. Reflectors were added so that participants were more visible at night.

3.2.2 Logistics

The mediascape was being offered as part of the digital story telling festival. In addition to the conference delegates there were invited guests present at an opening evening launch party.

The process that was designed involved a series of desks. Separate desks helped organize the flow of people through the process and minimized too much congestion in one area. The sign up desk was on the main floor and participants registered in pairs for a particular time slot and were asked to sign a disclaimer form. At the allotted time the pair went to the equipment check out areas, where they were asked for their forms and to leave their drivers license which would get returned when they gave back the equipment. They then moved on to be “dressed”, prepped and sent on their way.



Figure 5. Dressing, prepping and going out

Dressing involved putting the sash of equipment on and checking that it worked. Prepping involved giving the participants the handout, telling them what to expect and what to do if they had any problems. When they were sent out participants needed to go down in an elevator and outside onto the street where they were told to wait until the mediascape told them that their GPS was working and they had “got a fix”. A helper was stationed at the exit of the building to check that all was well.

When the participants returned to the building they took the equipment to the returns desk and were asked to fill in a questionnaire and some were interviewed as part of the evaluation process.

4. OUTCOME

Scape the Hood was launched as planned at the opening evening of the Digital Story telling Festival. 114 people tried out the mediascape in the evening and over the course of the festival a further 57 delegates went through the experience.

Most people who tried out the mediascape had not experienced a GPS triggered mediascape before, it was a new experience. The mediascape itself was very well received and there were no serious problems. Feedback from the experience is examined in the next section.



Figure 6. Experiencing the mediascape in front of the murals

A GPS trace was automatically logged on to the storage card of the iPAQ so that it is possible to analyse the path that each person took, the content that they heard and the evidence for any erratic GPS behaviour.

Figure 8 shows the GPS trace map of one user. The Green circle indicates the start point which is outside the KQED office. We can see that initially the GPS has drifted slightly which is indicated by the path of white circles which overlay the bus depot in the top right hand of the picture. The path eventually aligns very well with the pavement as soon as the user has crossed the first intersection. .

The trace program outputs a circle every second and so we can see from the density of the circles that the user has walked pretty evenly along the street, dwelling a little longer near the murals at the top of the picture where the circles are more densely packed.

We can also see that the user had a good experience in terms of the consistency of GPS. If GPS drops out or jitters we would see a lot of spurious readings indicated by red lines on the trace output. For example at the end of the walk, which is indicated by the red circle, the user should be inside the KQED building but the trace shown the red circle a block away in a different building. This is because GPS will have a weaker signal and given spurious readings as the user enters the KQED offices. This is only evident at the end of the walk the rest of the trace shows uniform and consistent readings.

Analysis of the trace files shows that most users had a reasonable experience in terms of GPS stability. The route shown in the example is the most common path taken by most users although not everyone went into the garden of Project Artaud and on some of the sessions the market site was not open which meant that participants could only walk around the outside of the site and hear a small subset of the stories. Some participants experienced the Mission Village market when it was empty and some experienced the mediascape while the market was taking place. Opinion was divided as to whether it was more pleasurable to experience the market with or without listening to the mediascape.

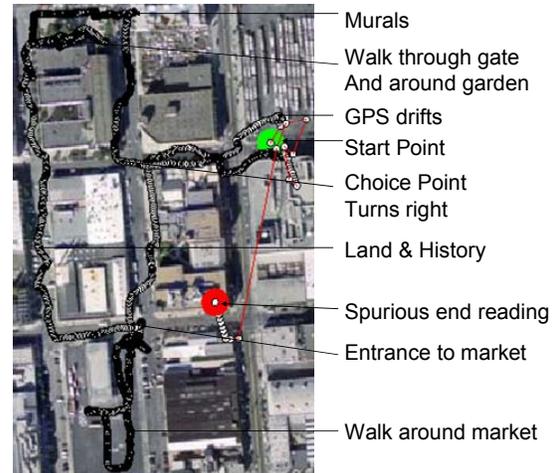


Figure 7. Example trace output

5. EVALUATION

Feedback to the experience was gathered through questionnaire and interview.

On the questionnaire forms participants were asked their age, gender and what they liked best and least about the experience. Age ranged from mid 20s to 80 with the average being 41. 55% of participants were female and 45% were male. Five questions about the experience were asked in the form of a graphic rating scale. The form of the question asks participants to make a mark on the line between “not at all” and “very much” to indicate how they feel. The line is interpreted as being ten units on and the responses are measured to see in what range they fall. A summary of the responses are shown in Table 1.

Table 1. Rating scale responses

Question	Mean	Std. Dev	Responses
How much did you enjoy “Scape the Hood”?	7.7	1.9	58
How immersed in the experience did you feel?	6.9	1.8	59
Did you wish there were pictures to go with the experience?	3.5	3.3	55
Did you feel in control of the experience?	4.7	2.5	59
How important was it to listen to these stories in this location?	7.7	2.5	56

Enjoyment, immersion and the importance of the location all score very highly indicating that most people had a very positive experience and enjoyed the stories. There is a slight gender difference on ratings for enjoyment with women rating the experience slightly higher than men (Mean ratings Female 8 : Male 7.2).

5.1 What did you like best about the experience?

The most commonly cited (21 instances) value that people report from this experience was gaining a **new perspective** “*ability to glean levels of meaning inside what we see*” and learning new things “*being able to walk around the neighborhood and learn more about the history*”. They also liked the physical connection between what you see and what you hear, the interaction style of walking, the variety of personal stories and the quality of the sound and music.

5.2 What did you like least about the experience?

The largest irritant to people were feelings of confusion and lack of control. “*the sound experience was sometimes confusing – I would hear bits of stories and not be sure if I was walking too fast or that was it*”. People were not sure how to resume a story and were frustrated if they could not hear it in its entirety “*a story would start and then cut off and we wouldn’t be able to get it back*”. There were also a few negative comments related to the physical environment such as the cold, the wind, the dark and the smell of urine! Some people disliked being paired up with a buddy “*being tethered to a partner was a little cumbersome*” and they would have liked visual imagery for the more abstract pieces. Whilst only a few people reported it, one of the strongest negative reactions to mediascapes is the perceived intrusion of technology and virtual content on the real world. “*I wanted to take the headphones off and have the real ambient experience*”

6. LESSONS LEARNED

Despite the erratic nature of GPS, enjoyable and robust experiences can be created that use movement to trigger media based on location. The “intro” section which settles people into the mediascape, reassures them while GPS is getting a fix and gives them feedback when they are ready to move on was a great enhancement to the overall user experience and minimized the technical glitches.

Audio works best with tangible visible artifacts like the wall murals or the furnace bricks in the pavement. More abstract content such as the Land and History section can really benefit from visual augmentation but the way in which images are introduced needs careful design so that the user is not forced to continuously look at a screen. There are many users who like audio only and who say they do not want images. Their needs should be taken into consideration so that the immersive and enjoyable aspects of the audio experience are not spoiled through the introduction of too many images.

Feedback from the experience has reinforced the evidence that there is a dichotomy between those who wish for more control and those who enjoy serendipity. Careful introduction of a number of controls should be designed so that as far as possible both needs can be satisfied. For example the most common functions such as “Pause and resume”, if you want to talk to someone and “replay” if you missed part of a story might be enough to offer limited control but retain the simplicity of the interaction style. Ideally the controls could be physically instantiated so that the user does not even have to look at them.

The use of a sash is an expedient way for integrating prototype technologies into a wearable whole. It also provides many other benefits such as being visible to encourage a sense of bonding and theater with other participants; being easy to store, hang and put on and off. They also help the spectator experience, so that non participants can explain perhaps odd behaviour in movements and walking around in pairs. [11]

On the mediascape creation process many lessons were learned about the use of specific tools in the MBAF and the art of region design

- Emulation on the PC is not sufficient, it is really important to try things out in the environment
- Rapid iteration should be used for testing and refining a mediascape, too much production away from the environment is counter productive
- The way regions overlap is important to the flow of the mediascape
- Point sources are best for ambient sounds and “stingers”
- There is an adjacency effect with sounds needs to be taken into account in the region design and the placement in the environment
- “Stingers” and other forms of ambience are very effective and add memorable moments for those who encounter them

More generally a valuable lesson was learned on the importance of interviewing people in the intended location for the mediascape rather than in a studio. The stories that they tell are more likely to be richly connected to the environment and the language will be in context with the surroundings rather than the more general abstract recollections that would happen away from the place. However the skill of the interviewer is in soliciting the right kinds of story so that interviewees do not simply describe what is easy to see.

The process that was used to create the mediascape was successful and repeatable for story based content and audio only mediascapes. The process can be optimized on the content gathering side by relying more on “in situ” interviews rather than in the studio interviews. Editing the recorded stories to eliminate long pauses and idiosyncrasies makes a better listening experience and still retains the authentic voice and naturalness of the story telling.

The experience has reinforced the value that people see of using mobile technologies to provide a new perspective to a familiar or new physical space. The Mobile Bristol Authoring Framework has been developed so that more people can begin to explore the potential for these kinds of mediascape so that a rich variety of perspectives and content can be created for more people to enjoy.

7. ACKNOWLEDGMENTS

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Land and History – Paula Levine, Carolina Lucero Funes, Romero Alves

Mission Village Market – Leslie Rule, Stan Heller, Thom Mallon.

The rest of the Mobile Bristol team in particular Phil Stenton, Paul Marsh and Erik Geelhoed.

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